

Purity and Formulations

Q1. (2018) – 4c (ii)

(c) When burnt completely in air, butene forms carbon dioxide and water.

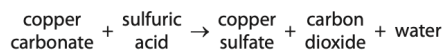


(ii) Describe the test to show that a gas is carbon dioxide.

(2)

Q2. (2020) – 9a (iii)

9 The word equation for the reaction between copper carbonate and dilute sulfuric acid is



(iii) What is the chemical test to show that a gas is carbon dioxide?

(1)

- ☒ A bubble the gas through limewater, limewater turns cloudy
- ☒ B put damp blue litmus paper in the gas, litmus paper turns red
- ☒ C put a lighted splint into the gas, splint is extinguished
- ☒ D measure the pH of the gas, pH = 4

Q3. (2021) – 2b

(b) Figure 2 shows a label from a bottle of drinking water.

Pure drinking water	
Mass of dissolved solids in mg per 1000 cm ³	
calcium ions	60
sodium ions	2
hydrogencarbonate ions	200
pH of water	
pH	7

Figure 2

(i) Explain why this drinking water should not be described as pure water.

(2)

Q4. (2022) – 2d

- 2 Figure 3 shows a metal spoon and two test tubes being heated in a water bath.

One test tube contains a piece of chocolate, the other some liquid egg white.

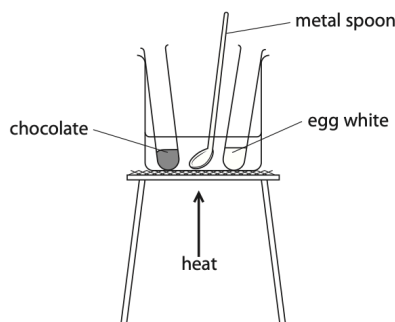


Figure 3

After heating, the spoon, the chocolate and the egg white are allowed to cool to room temperature.

Figure 4 shows the state of the three different substances before heating, when hot and after cooling.

substance	before heating	when hot	after cooling
metal spoon	solid	solid	solid
chocolate	solid	liquid	solid
egg white	liquid	solid	solid

Figure 4

- (d) Explain how we know the change to the egg white is a chemical change rather than a physical change.

(2)

Q5. (2022) – 3a (iv)

- 3 Potable water is water that is suitable for drinking.

- (a) River water can be treated to make it potable.
Chlorination, filtration and sedimentation are three of the processes involved in making the river water potable.

- (iv) Figure 5 shows the results of an analysis of a sample of potable water.

ion	concentration in mg dm^{-3}
chloride	60.70
fluoride	0.24
nitrate	24.90
sulfate	71.40
copper	0.05
magnesium	9.10

Figure 5

Using this information, explain why this sample of potable water is not the same as pure water.

(2)

Q4. (2024) – 1b (ii)

1 Figure 1 shows a test tube being heated in a beaker of water.

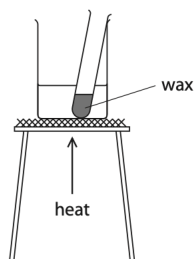


Figure 1

The test tube contains solid wax.

As the test tube was heated, the solid wax changed to liquid wax.

After heating, the wax was allowed to cool to room temperature.

(b) When the wax cools, it changes from a liquid back to a solid.
This change is a **physical change**.

(ii) Explain why the change from a liquid to a solid is a physical change rather than a chemical change.

(2)

Q5. (2024) – 3b (iii)

(iii) State why tap water is not suitable for use in chemical analysis.

(1)